

CLAIMS

1. A dust collector comprising an upright tubular main body closed at both ends and a tubular partition wall of a reduced diameter concentrically arranged internally of said main body to define a centrally located filtration chamber and an annular cyclone chamber situated outwardly of said filtration chamber, the lower edge of said partition wall terminating upwardly away from the bottom of said main body so that said filtration chamber and said cyclone chamber are communicated with each other at the lower part thereof, said dust collector further comprising a filter arranged in said filtration chamber and means for applying vacuum to the secondary side of said filter, said main body being provided with an air inlet opening tangentially to the upper part of said cyclone chamber and a drain opening located at the bottom thereof:

characterized by comprising means, provided at the upper part of said cyclone chamber, for forming a film of water flowing down along the inner circumferential surface of said main body and the outer circumferential surface of said partition wall, respectively, to ensure that a swirling stream of air to be treated drawn through said air inlet into said cyclone chamber is brought into contact with said water film to thereby cause airborne dust and particles in the air to be treated to be captured therein and to cause captured dust and particles to be washed away.

2. A dust collector according to claim 1, wherein said means for forming a film of water comprises an annular water supply means for spraying water toward the upper part of the inner circumferential surface of said main body and the outer circumferential surface of said partition wall.

3. A dust collector according to claim 1 or 2, characterized by comprising a plurality of flow straightening fins provided between the lower part of said partition wall and said main body to prevent air stream and water flowing down along the inner circumferential surface of said main body and the outer circumferential surface of said partition wall from swirling at the bottom of said cyclone chamber.

4. A dust collector according to claim 3, wherein said flow straightening fins extend radially and vertically.

5. A dust collector according to claim 3 or 4, wherein each of said flow straightening fins further comprises a portion that extends along the bottom surface of said main body.

6. A dust collector according to one of claims 1-5, further comprising one or more outwardly open supplemental drain openings provided at the lower part or bottom of said main body.